

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 April 2004 (29.04.2004)

PCT

(10) International Publication Number
WO 2004/035224 A3

(51) International Patent Classification⁷: B05B 7/24, 9/08

(21) International Application Number:
PCT/GB2003/004370

(22) International Filing Date: 9 October 2003 (09.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0224052.1 16 October 2002 (16.10.2002) GB
0303726.4 19 February 2003 (19.02.2003) GB

(71) Applicant and

(72) Inventor: HARTLEY, Brian [GB/GB]; 12 Oakley Avenue, Brockwell, Chesterfield, Derbyshire S40 4DS (GB).

(74) Agent: PARNHAM, Kevin; Swindell & Pearson, 48 Friar Gate, Derby DE1 1GY (GB).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

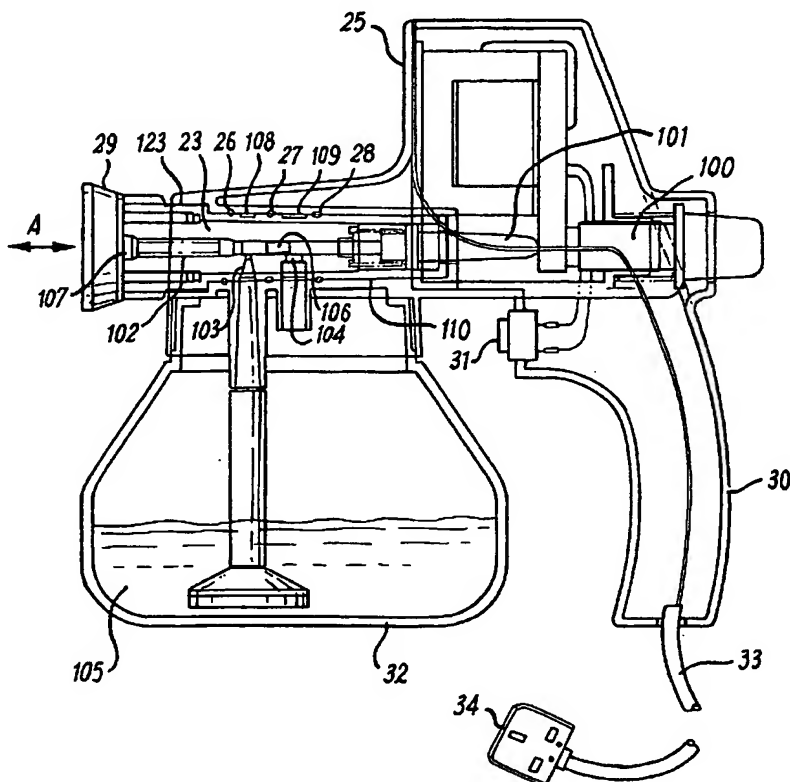
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: A SPRAY DEVICE



(57) Abstract: A spray device is provided in which a spray stem section (23) is secured within a passage (110) of a spray device body (25). The stem section (23) is readily removable to allow easy cleaning and also is normally made of materials, which allow disposal after use of the stem section (23). In order to allow such use of plastics materials, in particular the stem section (23) is associated with the passage (110) such that seal elements (26, 27, 28) isolate feed ports (103, 104) over a relatively broad communication band to gutter channels (108, 109) in the stem section (23). Normally a nozzle combination (107, 113, 114) is secured within a jet (102) such that this combination is also separately disposable. The nozzle combination (107, 113, 114) is held within the spray stem section (23) using a spray hood (115).



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:
1 July 2004

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 03/04370

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B05B7/24 B05B9/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B05B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 734 723 A (JOHN NEVILLE MORRIS; RAYMOND LESLIE KENT) 3 August 1955 (1955-08-03) page 1, line 45 - page 2, line 3; figure 2 -----	1-4,8, 10-12,16
X	US 4 160 525 A (WAGNER JOSEF) 10 July 1979 (1979-07-10) column 3, line 61 - column 4, line 26; figure 1 -----	1,4,5, 7-11,16
X	EP 0 263 897 A (WAGNER INT ; WAGNER GMBH J (DE)) 20 April 1988 (1988-04-20) column 2, line 26 - column 3, line 57; figures 4,5 -----	1,4-11, 16
X	US 2 811 391 A (KREBS THEODOR) 29 October 1957 (1957-10-29) column 1, line 68 - column 2, line 27; figure 1 -----	1,5,6
-/--		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

29 January 2004

Date of mailing of the international search report

14.05.04

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Jelercic, D

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 03/04370

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 423 348 A (JEZEK PAUL D ET AL) 13 June 1995 (1995-06-13) column 3, line 45 - column 4, line 68 -----	1-6, 13-15

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 03/04370

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-16

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-16

A spray device with spray stem

2. claims: 17-22, 25-27

Spray arrangement with vibration means

3. claims: 23, 24

A spike tool

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 03/04370

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 734723	A	03-08-1955	NONE	
US 4160525	A	10-07-1979	DE 2653981 A1 CH 623490 A5 FR 2371970 A1 IT 1116379 B JP 1190451 C JP 53068415 A JP 58021537 B	01-06-1978 15-06-1981 23-06-1978 10-02-1986 13-02-1984 17-06-1978 30-04-1983
EP 0263897	A	20-04-1988	DE 8627558 U1 EP 0263897 A1	02-01-1987 20-04-1988
US 2811391	A	29-10-1957	BE 516980 A CH 300674 A CH 328666 A DE 1033146 B FR 1078056 A GB 732606 A LU 31877 A NL 78846 C NL 88441 C	15-08-1954 15-03-1958 26-06-1958 15-11-1954 29-06-1955
US 5423348	A	13-06-1995	NONE	